

Claims:

1. A hybrid car comprising:
an internal combustion engine;
an electric motor disposed coaxially with a rotary shaft of said internal combustion engine;
a planetary gear mechanism disposed coaxially with the rotary shaft of said internal combustion engine and the rotary shaft of said electric motor, said planetary gear mechanism comprising a sun gear, a ring gear, planetary pinions, and a carrier supporting said planetary pinions;
a transmission comprising an input shaft to which power is transmitted from said internal combustion engine and said electric motor via said planetary gear mechanism and an output shaft connected to driving wheels; and
a rotation restricting device that properly restricts rotation of a rotor of said electric motor.
2. A hybrid vehicle according to claim 1, wherein said transmission comprises a continuously variable transmission.
3. A hybrid car comprising:
an internal combustion engine;
an electric motor disposed coaxially with a rotary shaft of said internal combustion engine;
a planetary gear mechanism comprising a sun gear, a planetary pinion (s), a ring gear, and a carrier rotatably supporting said planetary pinion, the rotary shaft of said internal combustion engine being connected to said sun gear, and a rotor of said electric motor being connected to one of said carrier and said ring gear;
a transmission comprising an input shaft to which power is transmitted from said internal combustion engine and said electric motor via said planetary gear mechanism and an output shaft connected to driving wheels;

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a first engaging and disengaging device that enables and disables transmission of power between said carrier and an input shaft of said transmission;

a second engaging and disengaging device that enables and disables transmission of power between said ring gear and the input shaft of said transmission;

a first rotation restricting device that properly restricts rotation of the other one of said carrier and said ring gear; and

a second rotation restricting device that properly restricts rotation of said rotor.

4. A hybrid vehicle according to claim 3, wherein said planetary gear mechanism is a double pinion type comprising an inner pinion engaged with said sun gear and an outer pinion engaged with said ring gear as said planetary pinions, and the rotor of said electric motor is connected to said carrier, and said first rotation restricting device properly restricts rotation of said ring gear.

5. A hybrid vehicle according to claim 3, wherein said planetary gear mechanism is a single pinion type constructed such that said planetary pinion is engaged with both said sun gear and said ring gear, the rotor of said electric motor is connected to said ring gear, and said first rotation restricting device properly restricts rotation of said carrier.

6. A hybrid vehicle according to claim 3, wherein said transmission comprises a continuously variable transmission.

7. A hybrid vehicle according to claim 3, comprising:

a control device that controls states of said first and second engaging and disengaging devices and said first and second rotation restricting devices; and

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wherein said control device controls said second rotation restricting device to stop the rotor of said electric motor when the driving wheels are driven using only an output from said internal combustion engine.

8. A hybrid vehicle according to claim 7, wherein the driving wheels are driven using only an output from said internal combustion engine when the vehicle is running at an intermediate or high speed.

9. A hybrid vehicle according to claim 7, wherein said control device controls said second rotation restricting device such that restrictions imposed on rotation of the rotor of said electric motor are eliminated so as to operate said electric motor as a power generator when regenerative braking conditions are satisfied while the driving wheels are driven using only an output from said internal combustion engine.